REMARKS

These remarks are responsive to the Office Action dated September 24, 2007. Currently claims 32, 33, 38-66, and 69-71 are pending with claims 32, 38-41, 60, 61, and 71 being independent. Claims 1-31, 34-37, and 67-68 have been cancelled without prejudice or disclaimer. Claims 61 and 71 are withdrawn from consideration. Claims 32, 38-41, 60 and 69-70 have been amended to expedite prosecution of this application to allowance and to correct some informalities.

Applicants would like to thank the Examiner for allowing claims 41-59 and stating that claims 40 and 62-66 would be allowable if claim 40 is rewritten to correct the 35 U.S.C. 101 issue.

35 U.S.C. 101

In the September 24, 2007 Office Action, the Examiner rejected claims 40 and 62-66 under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Applicants amended claim 40 to include recitation of "a processor configured to operate on", as such, claim 40 now complies with requirements of 35 U.S.C. 101. Thus, this rejection is respectfully traversed. The Examiner is requested to reconsider and withdraw her rejection of claims 40 and 62-66.

35 U.S.C. 103

In the September 24, 2007 Office Action, the Examiner rejected claims 32-33, 38-39, 60, and 67-70 under 35 U.S.C. 103(a) as being unpatentable over Cotter et al., "The National Biological Information Infrastructure: coming of age", Online Information Review, Vol. 24, No. 6, pp. 429, 438, 2000 (hereinafter, "Cotter") in view of Pullan, M.R., et al., "The Prometheus Taxonomic Model: a practical approach to representing multiple classifications", Taxon 49: 55-

75, 2000 (hereinafter, "Pullan") and U.S. Patent No. 6,442,566 to Atman et al. (hereinafter, "Atman"). This rejection is respectfully traversed.

Amended claim 32 recites, *inter alia*, a computerized method for managing taxonomic information to facilitate retrieval of information, including identifying a first name that specifies an organism, determining if the first name corresponds to a name entry in a names table, identifying a first taxonomic identifier of the name entry, determining if the first taxonomic identifier is included in a classification entry in a classification table allowing taxa to be organized according to more than one classification, wherein each entry in the classification table associates the first taxonomic identifier with a classification identifier, a relationship attribute, and a second taxonomic identifier, and wherein the classification table is included in a database of classifications configured to accommodate alternative classifications and help determine a classification for the organism, identifying the second taxonomic identifier of the classification entry, and based on the second taxonomic identifier, identifying a second name.

In the September 24, 2007 Office Action, the Examiner stated that Cotter discloses all elements of claim 32 except that it does not "disclose allowing taxa to be organized according to more than one classification." (Office Action, page 4). Instead, according to the Examiner, "Pullan teaches allowing taxa to be organized according to more than one classification (Pullan, page 10-11)". The Examiner further stated that "[i]t would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teachings of the cited references because Pullan's teaching would have allowed Cotter's to better organize the data and classify the taxa more flexibly by allowing taxa to be organized according to more than one classification disclosed by Pullan." (Office Action, page 5). The Examiner further stated that Cotter and Pullan fail to "teach a names table a classification table." (Office Action, page 5).

According to the Examiner, Atman teaches this limitation and one could combine the teachings of Cotter, Pullan, and Atman to "facilitate efficient data processing by providing a knowledge base that is both flexible and highly structure[d] as suggest by Atman..." (Office Action, page 5).

As previously stated in Applicants' December 29, 2006 Response, Cotter discloses an Integrated Taxonomic Information System ("ITIS") that provides a standardized reference for the scientific names of the flora and fauna of North America and surrounding oceans. (Cotter, page 432, col. 2). ITIS provides a common vocabulary of species names and links to biological data. Cotter simultaneously searches for a name and synonyms of the name. (Cotter, page 432, col. 2). Cotter's ITIS depends upon a system of data stewards, i.e., people with particular taxonomic expertise, who are responsible for scientific quality of data. (Cotter, page 433, col. 1). Upon completion of a search, Cotter's ITIS produces one preferred scientific name and multiple synonyms of the scientific name. Cotter implements a controlled vocabulary to use in describing resources in metadata records. (Cotter, page 434, col. 2). A researcher, using Cotter, creates metadata records by entering a known term and then Cotter checks the term against the controlled vocabulary. (Cotter, page 435, col. 1).

However, Cotter fails to disclose, teach or suggest, *inter alia*, identifying a first taxonomic identifier of the name entry, as recited in claim 32. Instead, Cotter only describes a controlled vocabulary that contains a plurality of terms and synonyms of those terms, where the synonyms are produced as a result of a search. (Cotter, pages 434-435). Cotter allows its users to create a metadata record based on their search. This is in contrast to the present invention that identifies a first taxonomic identifier of the name entry, as recited in claim 32. Further, Cotter does not disclose, *inter alia*, determining if the first taxonomic identifier is included in a classification entry in a classification table allowing taxa to be organized according to more than

one classification, wherein each entry in the classification table associates the first taxonomic identifier with a classification identifier, a relationship attribute, and a second taxonomic identifier, and wherein the classification table is included in a database of classifications configured to accommodate alternative classifications and help determine a classification for the organism. In contrast, Cotter's controlled vocabulary generates synonyms and other authorized terms based on an entered search term. The searcher, using Cotter controlled vocabulary, browses the vocabulary to select the most specific authorized terms for retrieval of datasets and documents or combines the terms to construct a wider-ranging free-text search. (Cotter, page 435, col. 1-2). However, Cotter fails to have a classification table, where the first taxonomic identifier is associated with a classification identifier, a relationship attribute, and a second taxonomic identifier, as recited in claim 32. Instead, Cotter uses a controlled dictionary with a plurality of synonyms to identify terms.

Cotter also does not disclose, teach or suggest, *inter alia*, identifying the second taxonomic identifier of the classification entry, as recited in claim 32. As stated above, Cotter discloses a controlled vocabulary containing scientific terms and synonyms of the terms, but does not disclose use or identification of taxonomic identifiers. In the present invention, the second taxonomic identifier is a part of the classification table, where entries include a classification identifier and a relationship attribute along with the second taxonomic identifier. Clearly, Cotter fails to disclose this element. Thus, Cotter does not disclose, teach or suggest all elements of claim 32.

Pullan fails to cure the deficiencies of Cotter. As previously stated in Applicants' December 29, 2006 Response, Pullan discloses a circumscribed taxon ("CT") element that contains a representation of taxonomic opinion, i.e., circumscription of the taxon. The CT

element includes a rank of the taxon (i.e., whether certain types of links can be made to or from a CT element and which rules should be applied when determining the correct name), circumscription details (i.e., a CT delimiter), ascribed name, author and date. (Pullan, Figure 3, Pages 9-10). Pullan's classification is represented by the relationships between CTs, i.e., the fact that a taxon is a member of another taxon of higher rank is indicated by a link between the appropriate CTs. Pullan's classifications are represented by a separate hierarchy of CTs. (Pullan, page 10).

Pullan fails to disclose, *inter alia*, determining if the first taxonomic identifier is included in a classification entry in a classification table allowing taxa to be organized according to more than one classification, wherein each entry in the classification table associates the first taxonomic identifier with a classification identifier, a relationship attribute, and a second taxonomic identifier, and wherein the classification table is included in a database of classifications configured to accommodate alternative classifications and help determine a classification for the organism, as recited in claim 32. Instead, rather than organizing taxa according to more than one classification, as suggested by the Examiner, Pullan organizes taxons according to a hierarchy based on a rank and, then, links them together. This is clearly different than present invention's claim 32, which recites organizing taxa according to more than one classification in a classification table.

Further, Pullan does not disclose, teach or suggest a taxonomic identifier (whether first and/or second), as recited in claim 32. Instead, Pullan discloses a CT element, which represents a set of individual elements, annotated with names, that define a taxon. (Pullan, Page 10). The CT element is different from the taxonomic identifier. In contrast, the taxonomic identifier identifies an entry in a names table, where the name specifies an organism, and then, based on the

taxonomic identifier, a second name can be identified, where the second name also identifies an organism, according to claim 32. Additionally, the taxonomic identifiers along with classification identifier, and relationship attributes are associated within a classification table and further help determine a classification for an organism. Pullan fails to teach that.

Additionally, Pullan discloses that classifications are represented by relationships between CT elements and that these relationships are based on rank assignments of the CT elements. (Pullan, Pages 10-11). Further, Pullan's classifications are based on genus-species CT element groups (i.e., a genus rank CT element may have multiple species rank CT elements that are subordinate to it). (Pullan, Page 10). In contrast, the present invention organizes taxa according to more than one classification and includes a classification table that uses classification identifiers, relationship attributes, and taxonomic identifiers to associate them with other taxonomic identifiers for the purposes of determining classification for an organism. This is different than organizing CT elements based on rank.

Atman also fails to cure the deficiencies of either Cotter, Pullan or their improper combination. As understood by Applicants, Atman relates to a frame-based knowledge representation system that is built on a relational database. (Atman, Abstract). Atman's knowledge model contains classes that are organized in a taxonomy or "is a" hierarchy that begins with the most general classes and continues to specialize to narrowly defined classes. (Atman, Col. 6, lines 26-31). This is similar to the deficient disclosure of Pullan that has a hierarchical organization. Atman further includes a frames table that contains identification codes for each record, which facilitate efficient data processing by the system. (Atman, Col. 8, lines 9-13). However, Atman fails to disclose determining if the first taxonomic identifier is included in a classification entry in a classification table allowing taxa to be organized according to more

than one classification, wherein each entry in the classification table associates the first taxonomic identifier with a classification identifier, a relationship attribute, and a second taxonomic identifier, and wherein the classification table is included in a database of classifications configured to accommodate alternative classifications and help determine a classification for the organism, as recited in claim 32. Instead, Atman uses a frames table that simply assists more efficient processing of data using codes. This is clearly different than the present invention, as recited in claim 32.

As Applicants previously pointed out in their December 29, 2006 Response, Cotter states "The NBII Vocabulary was recently completed and is now being integrated with cataloguing and search tools. The research effort required to link distributed vocabularies is still under development." (Cotter, page 435, col. 2). Thus, at the time of the publication of Cotter, Cotter's system **has not been completed nor has it worked**, and as such it has not been enabled (emphasis supplied). Hence, Examiner's statements (Office Action, page 4) that certain elements of the present application's claims are taught by Cotter are improper. According to MPEP 2143:

> To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.
>
> The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). (emphasis supplied).

Thus, the Examiner cannot modify Cotter based on the disclosure of the present application to infer present invention's classification table among other elements, recited in claim 32. As such, the Examiner is requested to withdraw her rejection of claim 32.

Further, as stated above, Cotter and Pullan are biological information systems that do not facilitate information retrieval, contrary to the recitation of claim 32. Hence, Cotter and Pullan cannot be compared to the method of claim 32.

Thus, neither Cotter nor Pullan nor Atman nor their combination disclose, teach or suggest all elements of claim 32, and claim 32 should be allowed.

Further, there is no motivation or suggestion to combine Cotter, Pullan and Atman to produce the claimed invention. Specifically, Cotter discloses a biological information system having a controlled vocabulary that includes scientific names of species and links to biological data. The vocabulary can be searched to produce multiple synonyms of scientific names. Pullan discloses a genus-species ranking system that classifies relationships between specific CT elements. In contrast, Cotter does not disclose any way to rank scientific names in its vocabulary. Pullan does not disclose a controlled vocabulary that contains synonyms of names. Atman relates to an information retrieval system. Thus, Cotter, Pullan and Atman belong to different technological classes and cannot be properly combined.

Even if one were to combine Cotter, Pullan, and Atman, the present invention, as represented by claim 32, is not realized. Specifically, the combination of Cotter and Pullan results in a system that includes a controlled vocabulary of scientific terms and synonyms of the scientific terms, which can be organized in a hierarchy based on a rank that allows retrieval of information. However, the combination of Cotter, Pullan, and Atman fails to disclose, teach or suggest, *inter alia*, a computerized method for managing taxonomic information to facilitate retrieval of information, including identifying a first taxonomic identifier of the name entry, determining if the first taxonomic identifier is included in a classification entry in a classification table allowing taxa to be organized according to more than one classification, wherein each entry

in the classification table associates the first taxonomic identifier with a classification identifier, a relationship attribute, and a second taxonomic identifier, and wherein the classification table is included in a database of classifications configured to accommodate alternative classifications and help determine a classification for the organism, identifying the second taxonomic identifier of the classification entry, as recited in claim 32.

Thus, the combination of Cotter, Pullan, and Atman does not render claim 32 obvious. As such, this rejection is respectfully traversed. The Examiner is requested to reconsider and withdraw her rejection of claim 32.

Independent claims 38, 39, and 60 are patentable over the combination of Cotter, Pullan, and Atman for at least the reasons stated above with respect to claim 32. Thus, the rejections of claims 38, 39, and 60 are respectfully traversed. The Examiner is requested to reconsider and withdraw her rejections of claims 38, 39, and 60.

Claims 33 and 69-70 are dependent on the independent claim 32. As such, claims 33 and 69-70 are patentable over the combination of Cotter, Pullan, and Atman for at least the reasons stated above with respect to claim 32. Thus, the rejections of claims 33 and 69-70 are respectfully traversed. The Examiner is requested to reconsider and withdraw his rejections of claims 33 and 69-70.

CONCLUSION

No new matter has been added.

If the Examiner believes that a telephone conference or interview would advance prosecution of this application in any manner, the undersigned stands ready to conduct such a conference at the convenience of the Examiner.

It is believed that no other fees are due in connection with filing this Response. In the event that it is determined that fees are due, however, the Commissioner is hereby authorized to charge the undersigned's Deposit Account No. 50-0311, Attorney Docket No. 24443-501-UTIL.

Respectfully submitted,

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Boris A. Matvenko, Reg. No. 48,165
Attorney for Applicants
MINTZ, LEVIN, COHN, FERRIS
GLOVSKY AND POPEO, P.C.
The Chrysler Center
666 Third Avenue, 24th Floor
New York, New York 10017
Tel: (212) 935-3000
Fax: (212) 983-3115